ROYAL PRINCE ALFRED HOSPITAL – A HEALTHCARE AND TECHNOLOGY BEACON

Famed Australian teaching hospital and research facility maintains healthcare leadership position with help from Alcatel-Lucent Enterprise

The Royal Prince Alfred Hospital (RPA) is one of Sydney’s oldest and largest healthcare institutions. The principal teaching hospital of the University of Sydney, RPA provides the broadest range of clinical services on one site in New South Wales, with tertiary and quaternary services that include liver and kidney transplantation, open heart surgery, the National Medical Cyclotron, neo-natal intensive care, mothers and babies, and regional trauma services. Coordinating the activities, interactions and collaboration of more than 5,000 staff requires a communications infrastructure that is second-to-none, and for more than a decade, RPA has entrusted this critical role to Alcatel-Lucent Enterprise.
CHALLENGES

• The shift to a digitized healthcare system required a modern, flexible and robust network.
• Aging legacy infrastructure
• Finding a strategic vendor able to work with the hospital, understand their business and deliver the full range of communications technology to support the business now and into the future.

SOLUTION

• Alcatel-Lucent Enterprise Converged Campus Network solution
  - High-capacity 10 Gigabit Ethernet (GE) backbone
  - Centralized network management and monitoring
  - Pervasive Wi-Fi coverage
  - Quality of service based on user network profile and traffic type
  - An application fluent network providing data center connectivity for critical clinical applications as well as image and record storage
  - Ready for:
    - BYOD and advanced guest access
    - Power over Ethernet
    - Voice over IP
    - Mission-critical business telephony for doctors, nurses and staff with the Alcatel-Lucent Emergency Notification Server (ENS)

THE CHALLENGES

As the flagship hospital of the Sydney Local Health District, RPA hosts a range of specialty services in its multi-building campus that are critical to the ongoing health and wellbeing of the region, including the largest Melanoma Unit in the world, the National Liver Transplant Unit, a large In-Vitro Fertilisation Unit, Australia’s first major Hemophilia Center as well as the nation’s first Gynecological Oncology Unit.

Keeping RPA on the cutting edge of medical treatment and research requires a robust, reliable and highly-available voice and data network infrastructure, says Nick van Domburg, Chief Information Officer for the Sydney and South Western Sydney Local Health Districts. “The major challenges are to try to stay one step ahead of the user’s expectations and demands - making sure that we grow the infrastructure to support what physicians and patients expect. That’s not always easy especially in the public health sector, where budgets are tight. Over the past couple of years we have seen a significant change in the realization that good core ICT infrastructure, voice and data, is an essential building block to delivering high-quality health services. If you haven’t got those, then you pretty much limit yourself and your capacity as to what you can do.”

Recently RPA decided to increase the capacity of its core network to support the increasing demands from some key new applications, including a patient-centered electronic medical record (eMR) that provides a comprehensive view of each patient, wireless mobile electrocardiogram (ECG) stations, and a picture archiving and communications system (PACS). The network also had to support VoIP technology to allow for the eventual replacement of aging legacy PABX systems. Finally, the network had to deliver campus-wide wireless connectivity to enable enhanced mobile applications and connectivity for staff and patients, in addition to securely supporting the emerging bring your own device (BYOD) trend.

Underlining the importance of a successful deployment, van Domburg says “We’re digitizing almost everything we do, which makes the network central to our healthcare-delivery methodology. We can’t afford to have our network be unavailable.”

THE SOLUTION

To design and to provide the technology for the communications network that would help advance patient care – today and in the future – RPA turned to its longtime technology partner, Alcatel-Lucent Enterprise.

“We’ve been working with Alcatel-Lucent Enterprise for close to 15 years” said van Domburg. “It’s very important that vendors understand our business, are prepared to work with us, and will embark on a partnership to help us achieve our goals. That’s definitely been the case with Alcatel-Lucent Enterprise, our long-term...
For the core network infrastructure, Alcatel-Lucent Enterprise delivered a 10 GE backbone based on its OmniSwitch™ core switches. This backbone provides outstanding performance when supporting real-time voice, data, and video applications for converged scalable networks, with reduced operating expenses and lower total cost of ownership (TCO). Access to the local area and Wi-Fi networks are unified at the network edge. Alcatel-Lucent OmniSwitch access switches and OmniAccess™ WLAN Wi-Fi access points provide a high-quality user experience, delivering seamless connectivity regardless of access device, wired or wireless.

The foundation for the transition to VoIP telephony was put in place with the Alcatel-Lucent OmniPCX™ Enterprise Communication Server, which delivers world-class business telephony features that improve communication and collaboration at the hospital while again lowering the cost to operate and TCO.

“We did a lot of preliminary investigation before beginning the upgrade project, working with both Alcatel-Lucent Enterprise and their integrator to make sure the network design followed everyone’s idea of best practices,” said van Domburg. “By the time we did the implementation, we were all well briefed, and really understood our objectives, based on our relationships at a technical level, management level, and an executive level. This tight relationship is a testimony to their commitment - they’ve stayed and grown with us as our needs have changed.”

The new VoIP infrastructure has also helped meet the business continuity needs of a large and evolving facility where there is almost always some area under construction. “Recently, there were significant renovations that required a group of about 300 people to move off-campus,” said van Domburg. “We leveraged the VoIP capabilities of our core system to support those people, even though they were a couple of blocks away in temporary facilities. This was no small feat, but we were able to accomplish it seamlessly, thanks to the Alcatel-Lucent Enterprise network.”

Why Alcatel-Lucent Enterprise?
van Domburg credits the success of RPAs long-term involvement to a real commitment from Alcatel-Lucent Enterprise and its integrator, both to RPA, and to developing leading networking technology. “The fact that we have what I can term a ‘relationship’ is important. Very few suppliers do that. What’s important to me is they understand my business objectives and can deliver a solution that meets my voice and data needs at the highest level. That gives me a level of confidence that I can deploy whatever I’m being asked to by my leadership in a robust, highly reliable and highly available manner while remaining cost-effective. There’s a sense of ownership and a level of participation beyond just selling me boxes. I know I can escalate things and get the response I need if it ever comes to that - but it hasn’t so far.

“Everyone at the hospital takes our network for granted, which is what really tells me our strategy and solution has been a good one.”

NEXT STEPS
Now that the underlying network infrastructure and supporting technology is in place, the RPA is planning a number of enhancements to increase its ability to deliver improved patient outcomes.

THE BENEFITS
The Alcatel-Lucent Enterprise network infrastructure allowed the RPA to seamlessly roll out its advanced clinical solutions, including PACS, the wireless ECG carts and the eMR. “It’s really increased our ability to provide better care to patients,” said van Domburg. “For example, an ECG can now be taken wherever the patient happens to be using the wireless carts, can be viewed within minutes, and thanks to the eMR, is available to any physician within the Health District who needs to look at the patient’s record. A physician can walk around the emergency department with a wireless device and have entire patient histories at their fingertips. This has increased the quality of the clinical care we can deliver to that patient because the ECG or X-ray from the PACS system is viewable by everyone who touches or delivers care to that patient.”
CUSTOMER SUMMARY
Royal Prince Albert Hospital
DOCTORS: 537
NURSES: 1,610
ALLIED AND COMPLEMENTARY HEALTH STAFF: 402
ADMISSIONS: 72,800
OCCUPIED BED DAYS: 278,923
BIRTHS: 5,373

“We also know the network infrastructure enables capabilities we still haven’t tapped into such as asset management, tracking equipment, knowing where devices are, patient tracking and direct alarms.”

Other projects on the drawing board include increasing Wi-Fi coverage to blanket the entire facility, the complete replacement of the legacy PABX systems with VoIP, and enhancing collaboration between staff with a unified communications deployment. In addition, the hospital is exploring methods of securely opening their network to allow BYOD access for visiting clinicians and guest access for patients.

One thing is certain; Alcatel-Lucent Enterprise will continue to play a central role.

“Alcatel-Lucent Enterprise keeps us up to date with developments in medical technology around the world,” said van Domburg. “I’ve been to their R&D labs to discuss those developments and had the opportunity to see them in place in other healthcare facilities, both locally and internationally. And we ourselves are deploying some of the latest offerings from a core and data center perspective and doing things with it that some of these other advanced sites are only starting to think about. This makes us very confident that Alcatel-Lucent Enterprise can expand and enhance the network to meet our future requirements.”